

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P902366

Luminaire Tested: DFN2DIP-4P4F0-060D080US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902366
REPORT IS A COMBINATION OF REPORTS P899145 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D080US830-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

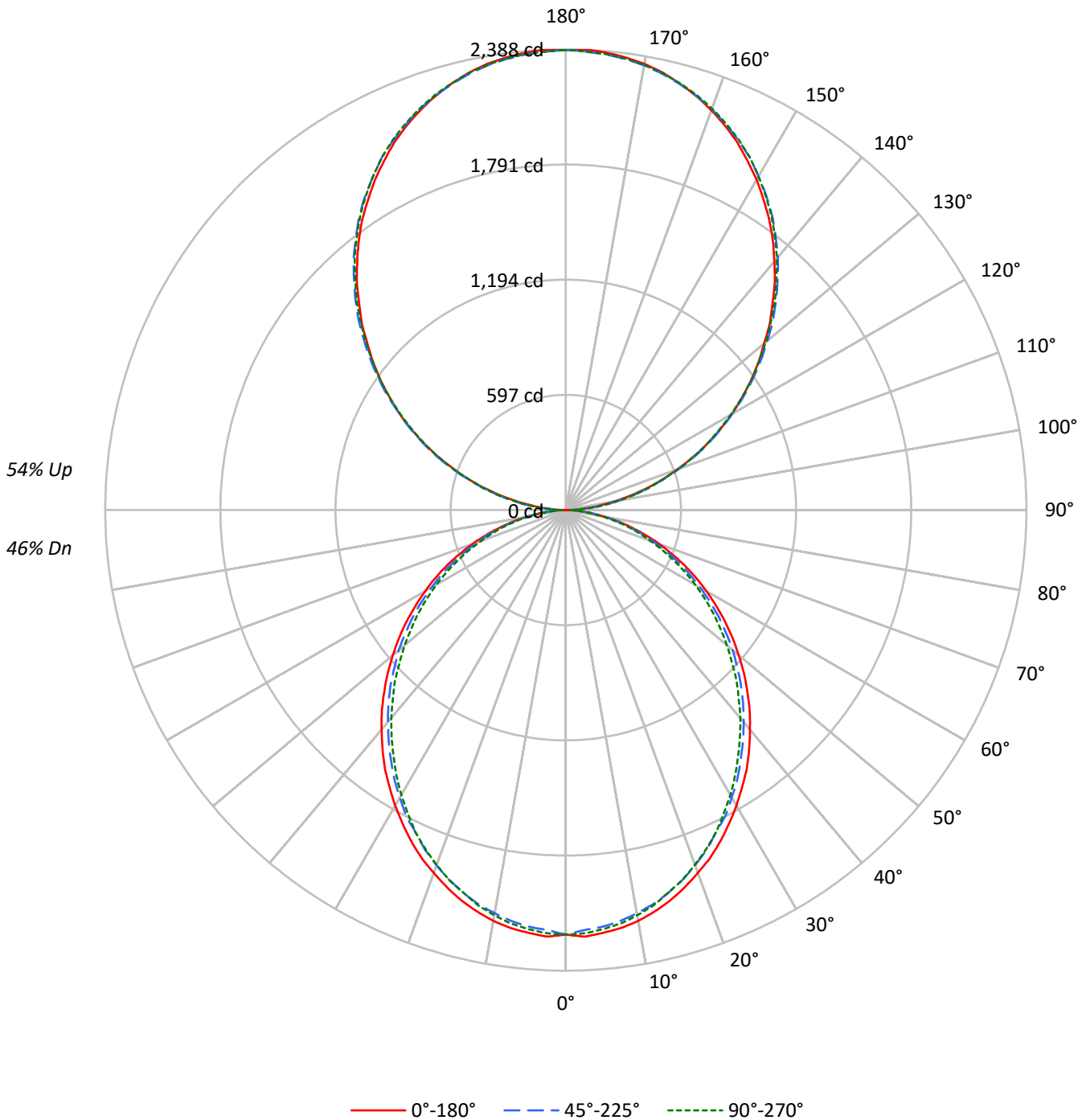
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12271.9 lumens
Efficiency: N/A
Efficacy: 90.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P902366
CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P902366

CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46			46
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38			38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	41	39	37	32			32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	32	27			27
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27	23			23
5	67	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	20			20
6	62	50	42	36	57	46	39	34	39	34	30	33	28	25	26	23	21	18			18
7	57	45	37	32	53	42	35	30	36	30	26	30	25	22	24	21	19	16			16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17	14			14
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15	13			13
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14	12			12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1428	1428	1428
5°	1430	1408	1418
10°	1418	1390	1399
15°	1398	1367	1370
20°	1370	1336	1339
25°	1342	1298	1304
30°	1307	1263	1260
35°	1274	1222	1212
40°	1233	1180	1168
45°	1192	1139	1122
50°	1147	1095	1069
55°	1101	1044	1020
60°	1048	984	964
65°	991	922	898
70°	917	846	827
75°	816	756	763
80°	694	641	638
85°	503	440	431

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1805 cd/sqm



TEST NUMBER: P902366

CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.7
10°-20°	582.7	4.7
20°-30°	856.4	7.0
30°-40°	994.6	8.1
40°-50°	993.4	8.1
50°-60°	866.2	7.1
60°-70°	640.3	5.2
70°-80°	362.3	3.0
80°-90°	102.4	0.8
90°-100°	147.6	1.2
100°-110°	468.9	3.8
110°-120°	802.4	6.5
120°-130°	1055.3	8.6
130°-140°	1184.5	9.7
140°-150°	1161.5	9.5
150°-160°	974.4	7.9
160°-170°	646.2	5.3
170°-180°	225.9	1.8
0°-30°	1646.2	13.4
0°-40°	2640.9	21.5
0°-60°	4500.5	36.7
0°-90°	5605.5	45.7
90°-120°	1418.8	11.6
90°-150°	4820.1	39.3
90°-180°	6666.0	54.3
0°-180°	12271.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	2	26	70	66	68	12
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	



TEST NUMBER: P902366

CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7



TEST NUMBER: P902366

CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7



TEST NUMBER: P902366
 CATALOG NUMBER: DFN2DIP-4P4F0-060D080US830-FLLFLL

CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.11	8.94	9.11	9.94	11.27	7.67	8.49	8.66	9.50	10.83
	3H	9.78	10.51	10.78	11.53	12.88	9.29	10.02	10.29	11.04	12.39
	4H	10.36	11.06	11.38	12.08	13.44	9.87	10.57	10.89	11.59	12.95
	6H	10.77	11.41	11.79	12.43	13.81	10.27	10.91	11.29	11.93	13.31
	8H	10.87	11.49	11.91	12.53	13.89	10.37	10.99	11.40	12.02	13.39
	12H	10.92	11.51	11.96	12.54	13.93	10.41	11.00	11.45	12.03	13.42
4H	2H	8.57	9.27	9.59	10.29	11.65	8.22	8.92	9.24	9.93	11.29
	3H	10.44	11.02	11.47	12.07	13.44	10.03	10.62	11.06	11.66	13.03
	4H	11.16	11.69	12.19	12.73	14.12	10.73	11.27	11.77	12.30	13.70
	6H	11.67	12.13	12.72	13.20	14.59	11.24	11.70	12.29	12.76	14.15
	8H	11.83	12.26	12.88	13.31	14.72	11.39	11.82	12.44	12.87	14.28
	12H	11.90	12.29	12.97	13.36	14.77	11.45	11.84	12.52	12.91	14.32
8H	4H	11.35	11.78	12.40	12.83	14.24	10.97	11.40	12.02	12.46	13.86
	6H	11.99	12.34	13.06	13.44	14.84	11.60	11.96	12.68	13.05	14.46
	8H	12.21	12.52	13.29	13.60	15.03	11.82	12.13	12.90	13.21	14.63
	12H	12.34	12.62	13.43	13.69	15.16	11.93	12.21	13.02	13.28	14.75
12H	4H	11.33	11.72	12.40	12.79	14.20	10.97	11.36	12.03	12.42	13.84
	6H	12.02	12.33	13.10	13.41	14.83	11.65	11.96	12.73	13.04	14.46
	8H	12.26	12.54	13.35	13.61	15.07	11.88	12.16	12.97	13.23	14.70